GOOZ, Lajos

Activities on the crude oil front. Foldr kozl 11 no.2:182-183 '63.

GOOZ, Lajos

On the world's oil export and import with emphasis on the Soviet Union. Foldr. kozl. 11 no.3:267-269 '63.

GOOZ, Lajos

Helsinki, "the white city of the North." Elet tud 18 no.42:1326-1331 20 O '63.

SOKOLOV, Mstislav Leonidovich; GONYUSHIN, A.I., red.; BODANOVA, A.P., tekhn. red.

[Surveying and planning in the reconstruction of mountain roads] Izyskaniia i proektirovanie pri rekonstruktsii gornykh dorog. Moskva, Avtotransizdat, 1963. 98 p. (MIRA 16:5)
(Mountain roads)

SPIVAK, M.Ya.; ARGUDAYEVA, N.A.; NABIYEV, E.G.; CHISTOVICH, G.N.; RIVLIN, M.I.; SEMENOV, M.Ya.; KRUGLIKOV, V.M.; SHAL'NEVA, A.M.; TITROVA, A.I.; RAYKIS, B.N.; MILYAYEVA, Ye.N.; BRUDNAYA, E.I.; GODINA, I.F.; VOL'FSON, G.I.; SOSONKO, S.M.; KOLESINSKAYA, L.A.; VYSOTSKIY, B.V.; MALYKH, F.S.; MIROTVORTSEV, Yu.I.; SYCHEVSKIY, P.T.; GOPACHENKO, I.M.; KARPITSKAYA, V.M.; FETISOVA, I.A.; MARTYNYUK, Yu.V.; EMDINA, I.A.

Annotations. Zhur. mikrobiol., epid. i immun. 40 no.3:128-131 Mr '63. (MIRA 17:2)

1. Iz Kemerovskogo meditsinskogo instituta i Kemerovskoy klinicheskoy bol'nitsy No.3 (for Spivak, Argudayeva). 2. Iz Kazanskogo instituta usovershenstvovaniya vrachey imeni Lenina (for Nabiyev). 3. Iz Leningradskogo kozhnogo dispansera No. 1 (for Chistovich, Rivlin). 4. Iz Rostovskoy oblastnoy sanitarno-epidemiologicheskoy stantsii (for Semenov). 5. Iz Stavropol'skogo instituta vaktsin i syvorotok (for Kruglikov, Shal'neva, Titrova, Raykis). 6. Iz Kuybyshevskogo instituta epidemiologii, mikrobiologii i gigiyeny i TSentral'nogo instituta usovershenstvovaniya vrachey (for Milyayeva). 7. Iz Vsesoyuznogo nauchno-issledovatel'skogo instituta zheleznodorozhnoy gigiyeny Glavnogo sanitarnogo upravleniya Ministerstva putey soobshcheniya i Detskoy poliklinik st. Lyublino

(Continued on next card)

SPIVAK, M.Ya.------ (continued) Card 2.

Moskovskoy zheleznoy dorogi (for Brudnaya, Godina). 8. Iz Vrachebno-sanitarnoy sluzhby Severnoy zheleznoy dorogi (for Vol'fson, Sosonko, Kolesinskaya). 9. Iz Vladivostokskogo instituta epidemiologii, mikrobiologii i gigiyeny i Primorskoy krayevoy protivochumnoy stantsii (for Vysotskiy, Malykh, Mirotvortsev, Sychevskiy, Gopachenko). 10. Iz Yaroslavskogo meditsinskogo instituta (for Karpitskaya). 11. Iz Aralmorskoy protivochumnoy stantsii (for Fetisova). 12. Iz L'vovskogo instituta epidemiologii, mikrobiologii i gigiyeny (for Martynyuk, Kudina).

TARASEVICH, I.V.; KULAGIN, S.M.; KUDRYASHOVA, N.I.; GOPACHENKO, I.M.; SOMOV, G.P.

Natural focus of tsutsugamushi fever. Zhur.mikrobiol.,epid. i immun. 41 no.5:19-24 My '64. (MIRA 18:2)

1. Institut epidemiologii i mikrobiologii imeni Gamalei AMN SSSR i Vladivostokskiy institut epidemiologii i mikrobiologii.

USSR/Human and Animal Physiology (Normal and Pathological). T-10
Nervous System. Pain.

Abs Jour : Ref Zhur - Biol., No 16, 1958, 75138

Author : Gedevanishvili, D.M., Gopadze, I.I.

Inst : Tibilissi Medical Institute.

Title : On the Problem of Cortical Representation of Pain Sense.

Orig Pub : Tr. Tbilissk. med. in-t, 1957, 14, 109-138.

Abstract : By combining the effect of a metronome and different tones with strong stimulation of a tooth with a faradic current, a conditioned defensive reflex was developed in cats exemplified by opening the mouth to meow or growl. The authors observed such a reaction earlier during stimulation by electrical current of sections of the occipital lobe of the cerebral cortex. After a bilateral destruction of determined sections of the cortex of the occipital area

Card 1/2

USSR/Human and Animal Physiology (Normal and Pathological). T-10
Nervous System. Pain.

Abs Jour : Ref Zhur - Biol., No 16, 1958, 75138

(area of 1 cm^2), the conditioned pain reflexes which were developed disappeared, and new conditioned pain reflexes were not developed further. The authors consider that the extirpated sections of the cortex were "the nucleus" of pain analysors. -- S.M. Dionesov.

Card 2/2

GOPADZE, N. N.; VENKVADZE, T. A.; GEDEVANISHVILI, D. M. (Tbilisi)

O vliyanii aminazina na vysshuyu nervnuyu deyatel'nost'

report submitted for the First Moscow Conference on Reticular Formation, Moscow, 22-26 March 1960.

GOPAK, A.K.; MILIRUD, B.T.

Operator P.G. Chepur's method for boiling first massecuite. Sakh. prom. 31 no.4:33-34 Ap '57. (MIRA 10:6)

1. Shpolyanskiy sakharnyy zavod.
(Sugar industry)

GOPAK, A.A.

GOPAK, A.K.

Scale trap. Sakh. prom. 31 no.12:47 D '57. (MIRA 11:1)

1. Shpolanskaya gruppovaya laboratoriya.
(Sugar industry--Equipment and supplies)

KARTASHOV, A.K.; GOLOVNYAK, Yu.D.; GOPAK, A.K.

Effect of impure pond water used in diffusion on the technological indices of factory operation. Sakh.prom. 33 no.9: 11-14 S '59. (MIRA 13:1)

1. TSentral'nyy nauchno-issledovatel'skiy institut sakharnoy promyshlennosti (for Kartashov, Golovnyak). 2. Shpolyanskaya gruppovaya laboratoriya (for Gopak).
(Shpola--Sugar manufacture) (Feed water--Purification)

SOKOLOV, G.A.; GOPAK, A.K.; SOKOLOVA, Ya.G.

Process conrol of massecuite cooking by means of a brasmoscope. Sakh. prom. 34 no. 12:28-34 D '60. (MIRA 13:12)

1. Smelyanskoye Spetsial'noye konstruktorskoye byuro TSentral'nogo nauchno-issledovatel'skogo instituta sakharnoy promyshlennosti (for Sokolov). 2. Shpolyanskaya gruppovaya laboratoriya (for Gopak). 3. Smelyanskiy sakharnyy zavod (for Sokolova).
(Sugar manufacture)

GOPAK, A.K.; PUSTOKHOD, G.P.

Effect of the temperature of defecation saturation and of the amount of added lime on the juice content after saturation during the processing of raw cane sugar. Sakh.prom.35 no.3:14-15 Mr '61. (MIRA 14:3)

1. Shpolyanskaya gruppovaya laboratoriya.
(Sugar manufacture)

GOPAK, K. N.

GOPAK, K. N. - "Some problems of the d namics of columnar drill tubing". L'vov, 1955. Min Higher Education Ukrainian SSR. L'vov State U imeni Ivan Franko. (Dissertation for the Degree of Candidate of Physicochemical Science.)

SO: Knizhnaya Letopis', No. 43, 22 October 1955. Moscow

SOV/179-59-4-27/40

24(6)

AUTHORS: Gopak, K. N., Krivosheyeva, S. G., (Dnepropetrovsk)

TITLE: Bending Torsional Vibrations and Stability of the Plane Bending Form of a Supporting Bar Fixed at One Side

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye, 1959, Nr 4, pp 16o - 162 (USSR)

ABSTRACT: This investigation concerns the dynamic stability of the plane bending form of a supporting bar fixed at one side which is strained by pure bending in the plane with the maximum bending resistance by the "follow-up" moment. As was also mentioned by Ye. L. Nikolai (Ref 1), the static method by Euler cannot be applied to this problem, and the critical load is determined here by means of the dynamic method. There are 1 figure, 1 table, and 5 references, 4 of which are Soviet.

SUBMITTED: March 2o, 1958

Card 1/1

GOPAK, K.N. (Dnepropetrovsk)

Loss of stability by a free rod moving under the action of a follow-up force. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr. no.4:136-137 Jl-Ag '60. (MIRA 13:8)
(Mechanical movements)

GOPANENKO, V.M.; GOLOSHCHAPOV, I.A.; STARCHENKOV, V.M.; KOZHUKHOVSKIY, A.; BELOV, V.V., veterin.vrach

Intraperitonial injection of the solution of drug mixtures into calves during dyspepsia. Veterinariia 41 no.3:56-59 Mr '64.

1. Glavnyy veterinarnyy vrach sovkhoza "Vpered", Moskovskaya obl. (for Gopanenko). 2. Glavnyy veterinarnyy vrach Yefremovskogo proizvodstvennogo upravleniya Tul'skoy oblasti (for Goloshchapov). 3. Zaveduyushchiy veterinarnoy laboratoriyey Yefremovskogo proizvodstvennogo upravleniya Tul'skoy oblasti (for Starchenkov). 4. Glavnyy zootekhnik Yefremovskogo proizvodstvennogo upravleniya Tul'skoy oblasti (for Kozhukhovskiy). 5. Sovkhoz "Tucha", Minskaya oblast' (for Belov).

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SOV/35-59-8-6341

3.1720

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1959, Nr 8, p 35

AUTHORS: Moiseyev, I.G., Gopasyuk, S.I.

TITLE: On the Correlation of Solar Sporadic Radio-Frequency Emission at the 1.5-m Wavelength With Visually-Observed Processes on the Sun

PERIODICAL: Izv. Krymsk. astrofiz. observ., 1957, Vol 17, pp 211 - 218 (Engl. summary)

ABSTRACT: Bursts of sporadic radio-frequency emission of the Sun at a wavelength of 1.5 m were correlated with rapidly varying visual phenomena on the Sun, on the basis of observational data of 1955. It is presumed that, on one hand, apparently every visually-observed phenomenon is accompanied by radio-frequency emission, and on the other hand, most of the "events" in the radio emission of the Sun is connected with the visual phenomena. A drop in intensity of radio emission bursts from the center of the Sun's disk to its periphery was determined, and,

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SOV/35-59-8-6341

On the Correlation of Solar Sporadic Radio-Frequency Emission at the 1.5-m Wavelength With Visually-Observed Processes on the Sun

from the course of this drop, the conclusion was drawn that it had been caused by absorption in the corona. The authors set forth their considerations as to the level of occurrence of 1.5-m radio emission bursts; they presume that the bursts of radio-frequency emission studied are generated by plasma oscillations in the condensations of the corona.

Authors' summary

Card 2/2

SOV/169-59-3-3000

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 3, p 139 (USSR)

AUTHOR: Gopasyuk, S.I.

TITLE: On the Motions in the Sun Flare on August 31, 1956

PERIODICAL: Izv. Krymsk. astrofiz. obsery., 1958, Vol 19, pp 100 - 104 (Engl. Res.)

ABSTRACT: A motion of the entire front having a sharply expressed periphery was observed in the flare recorded on August 31, 1956, from 15.30 to 17.00 hours Moscow time. One of the sections of this front was studied. The results obtained lead to the conclusion that motions analogous to shock waves exist in sun flares.

Author's résumé

Card 1/1

35078
S/712/60/023/000/012/014
D218/D301

3,1540 (also 1137)

AUTHOR: Gopasyuk, S. I.

TITLE: A study of chromospheric flares after the flash phase

SOURCE: Akademiya nauk SSSR. Krymskaya astrofizicheskaya observatoriya. Izvestiya, v. 23, Moscow, 1960, 331-340

TEXT: Experimental and theoretical studies at the Crimean Astrophysical Observatory indicate that at least in the flash phase there is a considerable release to energy, and the development of the flare itself is so intensive that the flare can to some extent be looked upon as an explosion. In order to investigate this problem the author carried out continuous motion-picture photography of flares in the H_α line, using the КГ-1 (KG-1) coronagraph. These H_α studies indicate that, at least in the initial stage of their development, the flares resemble explosions with cylindrical symmetry. Using L. I. Sedov's theory of shock waves it is estimated that, for example, the lower limit of the energy released in the

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flare of August 31, 1956, is $1.64 \times 10^{27} - 1.64 \times 10^{28}$ erg. This is the energy taken up in the formation of the shock wave. From this, the temperature as a function of distance from the axis of the hypothetical cylinder was estimated as $T_2 = 5.6 \times 10^{20}/r_2^2$. This formula cannot be used at short distances because as r_2 tends to zero, T_2 tends to infinity. The temperature at the center is estimated to be 5.6×10^6°K. Rocket studies are consistent with these results. Studies of the motion of bright surges, eruptive filaments and prominences, lead to the conclusion that the ejection of matter occurs practically instantaneously, and therefore the impulse acting on the material is very large. This phenomenon is analogous to the plasmoids observed under laboratory conditions in pulsed discharges. Acknowledgments are expressed to A. B. Severnyy, Corresponding Member AS USSR, for advice. There are 6 figures, 2 tables and 9 references: 8 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: H.

S/712/60/023/000/012/014
A study of chromospheric ... D218/D301

Friedman, T. Chubb, T. Kupperian and T. Lindsay, IGY Project, 1957.

SUBMITTED: May 13, 1959

Card 3/3

41281
S/035/62/000/010/030/128
A001/A101

AUTHOR: Gopasyuk. S. I.

TITLE: On the influence of a magnetic field on movements in chromospheric flares

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 10, 1962, 50, abstract 10A355 ("Izv. Krymsk. astrofiz. observ.", 1961, v. 25, 114 - 121, English summary)

TEXT: The author analyzes movements in flares relative to the longitudinal component of the photospheric magnetic field on the basis of 1957 - 1959 data. Records of the magnetic field were made, as a rule, during flares or immediately afterwards in the line λ 4886.3 by means of a magnetograph, and filming of flares in the Hα line rays was made with a КГ -1 (KG-1). The following conclusions have been drawn from the analysis: 1) The origination and development of flares is connected closely with a magnetic field; 2) in the initial stage of development of a flare knot, its expansion does not depend on orientation of a magnetic field; 3) the next stage in development of the knot is

Card 1/2

characterized by two types of movements: a) oriented movements proceeding along the zero line of the magnetic field, and b) oriented movements proceeding as a wide front in the region of the magnetic field of one polarity; 4) the glow is brighter and remains longer at that edge of the knot towards which proceeds the movement; 5) rather often, flare knots are displaced as a whole over the solar surface. There are 10 references.

From author's summary

[Abstracter's note: Complete translation]

20878
S/033/61/038/002/001/011
E032/E514

3.1540 (1062, 1128, 1184)

AUTHOR: Gopasyuk, S. I.

TITLE: A Study of Variations in the Magnetic Field and Sunspot Group Configurations in Connection with Solar Flares and the Determination of their Total Energy

PERIODICAL: Astronomicheskiy zhurnal, 1961, Vol.38, No.2, pp.209-217

TEXT: A systematic recording of the magnetic fields of active regions on the Sun has been carried out at the Crimean Astrophysical Observatory AS USSR (using H_β and 4886.3 FeI). These recordings were then used to deduce the detailed distribution of the radial component of the magnetic field. A characteristic feature of these distributions is the presence of isolated maxima (magnetic "hills"), which are associated with visible and invisible (in integral light) sunspots. An attempt was made to establish whether these "hills" are displaced during flares. Detailed analysis of the data obtained between 1957 and 1959 showed that both the "hills" and the sunspots are shifted during a flare. The beginning of the shift coincides to within 5 min with the onset of flare development. The magnitude of the shift varies

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from case to case and often reaches 20 000 km. A typical example is shown in Fig.5, which is concerned with a 1+ flare (August 16, 1960). This figure shows the sunspots before and after the flare (continuous and dashed lines). The region of the flare is shaded. The arrows indicate the direction and magnitude of displacement of the spots. The maximum displacement of the spot marked "a" was 12". The other spots are displaced through a smaller distance and the largest ones remained stationary. The time interval in Fig.5 was 4h 27m. An example of the displacement of the magnetic field "hills" associated with a 3+ flare (July 14, 1959) is shown in Fig.1a (time interval 1 h). The initial and final positions are connected by arrows, the length of which is a measure of the magnitude of the displacement. The numbers marked on the figure represent the magnetic field on the isogauss surrounding the "hill" and the letters N and S indicate the polarity. Assuming that the shift of the "hills" and sunspots towards the flares is associated with compression, due to the transformation of magnetic energy into thermal energy of the flare and the emission of energy, the energy of a flare is estimated to be of the order of 10^{32} erg.

In this calculation it is assumed that the pressure is 10^4 bar (this is equivalent to an average field in the region of 500 gauss), the initial dimension of the region (in the form of a cylinder) is $r = 4 \times 10^9$ cm, the depth of the region $h \simeq 5 \times 10^8$ cm and the average displacement $\Delta r \simeq 10^9$ cm. The above estimate is of the same order as the energy carried by cosmic rays associated with flares. Thus, it appears that the magnetic field is reduced during a flare, confirming the result obtained by A. B. Severnyy (Ref.4). There are 5 figures, 1 table and 6 references: 5 Soviet and 1 non-Soviet.

ASSOCIATION: Krymskaya astrofizicheskaya observatoriya Akademii nauk SSSR (Crimean Astrophysical Observatory Academy of Sciences USSR)

SUBMITTED: December 13, 1960

S/712/62/027/000/005/015
A001/A101

AUTHOR: Gopasyuk, S. I.

TITLE: The motion of sunspots related to solar flares and the possible nature of energy outlet from flare regions

SOURCE: Akademiya nauk SSSR. Krymskaya astrofizicheskaya observatoriya. Izvestiya. v. 27, 1962, 110 - 119

TEXT: The purpose of the present work was the study of sunspot motion in an active region. It was accomplished by systematic photography of the Sun in integrated light with a chromospheric-photospheric telescope АФР-2 (AFR-2) and a tower solar telescope with 12-m focus. The article contains the data of processing three flares in 1960 of classes from 1 to 2+. It was established that 1) sunspots during their origination and development, are displaced toward the flare knots; 2) the commencement of flare development and the beginning of the sunspot motion coincide within ±5 min; 3) the motion of sunspots lasts for 2 - 3 hours after the termination of the flare in H_α and has in all probability a pulsation-translational nature. The amplitude of pulsation increases with the flare class. The author analyzes the problem of magnetic energy conversion into

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The motion of sunspots related to...

internal energy of the gas, and comes to the conclusion that the volume decreases by a smaller amount in comparison with the observed magnitude (of the order of 8×10^8 cm). Therefore there is another reason for the mutual approaching of sunspots, and this reason is assumed to be the energy outlet from the flare region, in the form of cosmic rays, plasma and magnetic field. In the first stage, i.e., during the flare, the main part of energy is carried away by cosmic rays, and in the second stage, i.e. after the flare in H_α and up to the end of sunspot motion, the energy carried away by the "cold" plasma and magnetic field is prevailing. Moreover, ionization losses of cosmic rays are sufficient to explain energetically the observed emission of the flare in H_α and in the other spectral lines. There are 5 figures.

SUBMITTED: February 1961

Card 2/2

S/712/62/028/000/008/020
E032/E314

AUTHORS: Stepanov, V.Ye. and Gopasyuk, S.I.

TITLE: The structure of magnetic fields in active solar systems

SOURCE: Akademiya nauk SSSR. Krymskaya astrofizicheskaya observatoriya. Izvestiya. v. 28. 1962. 194 - 223

TEXT: The transverse and longitudinal components of the magnetic field were investigated for an active solar region, using the method described in a previous paper (Stepanov and Severnyy, present issue, p. 166) The magnetic field was recorded using the Fe λ5250 Å line (splitting factor 0.3/1), for which calibration charts were available so that the absolute magnitude of H and its angle to the line of sight could easily be determined. The active regions was followed for 8 days (September 1-8, 1961). Charts showing the magnitude of the field and its orientation are reproduced. Analysis of the charts showed that in sunspot regions the average transverse field was higher than the average longitudinal field by a factor of 2.3. This factor became 1.6 and 1.7 in the penumbra and umbra, respectively. The

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S/712/62/028/000/008/020
E032/E314

recorded distributions show that the structure of the magnetic field at the level of the photosphere in the multi-centre sunspot group resembles, in general, a dipole interaction pattern. However, when the distance between the sunspot umbras increases, an eddy structure appears in the penumbral region and its vicinity. This is due to the appearance of a finite azimuthal field component. The direction of the azimuthal field for the leader of the group was clockwise. The variation in the magnitude of the field vector for the leader of the group is found to be in excellent agreement with previous work (A.P. Severnyy - Izv. Krymskoy astrofiz. obs., 22, 12, 1960). The field falls off most rapidly in the penumbral region. The magnitude of the field at the penumbra-photosphere boundary is 500 Oe, while the angle between the field and the line of sight increases from zero at the centre of the spot to 60° at the above boundary. It then falls off slowly with increasing distance. Fig. 13 shows the variation in the field components with distance (in units of 500 km) for the leader of the group on April 5, 1961. A study of the bipolar structure of the umbra of the follower revealed the presence of strong azimuthal field components in neighbouring umbras. The

S/712/62/028/000/008/020
E032/E314

azimuthal component H_φ reaches its maximum on the $H_\parallel = 0$. The maximum value is equal to the value of $H_\parallel$ near the centre of the main umbra. The lines of force are parallel to the $H_\parallel = 0$ line and characterize the direction of the azimuthal component of the transverse field. The variation of $H_\parallel$ and H_φ with distance is similar to their distribution in a force-free field with cylindrical symmetry if it is assumed that the azimuthal components of two force-free fields of regions of different polarity can be added. An estimate is made of the conductivity coefficients for the partially ionized gas in the umbra and the neighbouring photosphere, using the magnetic-field data. The values of λ_0, λ_1, λ_2 and λ_3 for the umbra are 10^{12}, 6×10^9, 10^{10} and 4×10^{10} e.s.u., while the results for the photosphere are 2×10^{12}, 9×10^{11}, 8.5×10^{11} and 2×10^{12}, where λ_0 is the conductivity along the field direction, λ_1 is the conductivity in the direction perpendicular to the field, λ_2 is the Hall conductivity and λ_3 is

The structure of ....

the conductivity associated with Joule losses. It turns out that the conditions existing at the sunspot umbra are favourable for the existence of near-force-free fields. There are 17 figures and 3 tables.

SUBMITTED: December 22, 1961

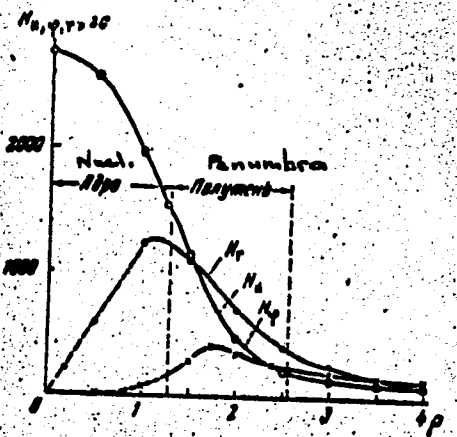

Fig. 13:

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ACCESSION NR: AP4007597 S/0214/63/000/004/0077/0081

AUTHORS: Gopasyuk, S. I.; Ogir', M. B.; Tsap, T. T.

TITLE: On the relationship between photospheric and chromospheric processes in the active region during flares

SOURCE: Solnechny*ye danny*ye, no. 4, 1963, 77-81

TOPIC TAGS: photospheric process, chromospheric process, flare, photoheliogram, sunspot umbra, sunspot penumbra, corona, magnetograph, active region

ABSTRACT: Sunspot activity and solar flares accompanied by particle emissions along radial lines have been carefully studied using motion pictures and photoheliograms. A superposition of the two has allowed investigation of detailed sunspot distributions. The data obtained have been used to calculate the total number of atoms in the active region of the chromosphere and in the whole solar corona. When these values are compared with the total number of atoms, the source of particle emission and strong flares is found to be in the photosphere. Furthermore, magnetograph records indicate an increase in radial velocity in photospheric levels during solar flares. It is shown that among the increased mass of ascending substances in the photosphere, sunspot displacement, particle surges in

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ACCESSION NR: AP4007597

the chromosphere above the sunspots during solar flares, and the solar flares themselves, there exists a very intimate relationship. All these phenomena are then assumed to be due to a single primary process occurring, in all probability, within or immediately below the photosphere. Orig. art. has: 3 figures.

ASSOCIATION: Krymskaya astrofizicheskaya observatoriya (Crimean Astrophysical Observatory)

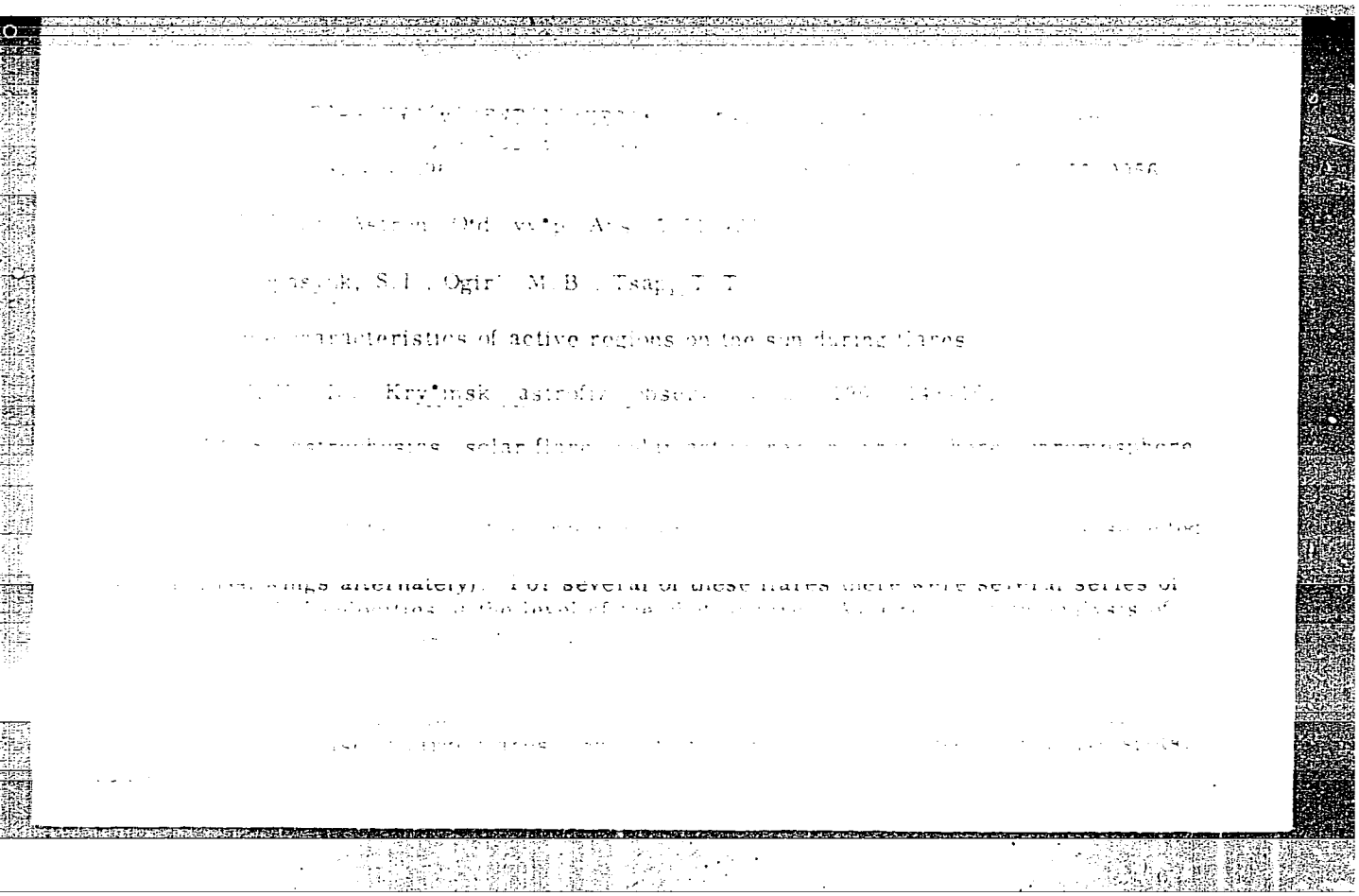
SUBMITTED: 00 DATE ACQ: 21Jan64 ENCL: 00

SUB CODE: AS NO REF SOV: 004 OTHER: 000

Card 2/2

GOPASYUK, S.I.; OGIR', M.B.; SEVERNYY, A.B.; SHAPOSHNIKOVA, Ye.F.

Structure of solar magnetic fields and its variations in flare regions. Izv. Krym. astrofiz. obser. 29:15-67 '63. (MIRA 16:10)



N NR: AR4040396

... the maximum development of a flare its brightness in the blue wing is ... in the red wing; after the maximum — vice versa. ... There is a close ... between the increase in the mass of ascending matter in the photosphere

... Bibliography with 29 items. Authors' summary

SUB CODE: AA ENCL: 00

ACCESSION NR: AR4021616 S/0269/64/000/002/0058/0058

SOURCE: RZh. Astronomiya, Abs. 2.51.415

AUTHOR: Gopasyuk, S. I.; Ogir', M. B.

TITLE: The relationship between solar surges and flares

CITED SOURCE: Izv. Kry*msk. astrofiz. observ., v. 30, 1963, 185-199

TOPIC TAGS: sun, solar activity, surge, flare, solar surge, solar flare, sunspot, solar magnetic field, photoheliogram

TRANSLATION: A study was made of 330 flares on the solar disk and 188 flares at the solar limb on the basis of observations made with a coronagraph at the Crimean Astrophysical Observatory at the center of the Hα Line during the period 1957-1962. The relationship between surges and flares was studied. The site of occurrence of surges relative to spots was determined on the basis of a joint study of films and photoheliograms. The following conclusions were drawn: 1. All flares are accompanied by surges. 2. The occurrence of an absorption surge is associated

Card 1/2

ACCESSION NR: AR4021616

both with the development of the flare itself (even a microflare) and with a repeated intensification of brightness or with the development of a new condensation. 3. The ejection of matter (absorption surges) occurs during the entire lifetime of the flare. 4. Absorption surges erupt from spots and move along the magnetic field. Bibliography of 18 titles. Author's abstract.

DATE ACQ: 09Mar64 SUB CODE: AS ENCL: 00

Card 2/2

L 32102-65 EWT(l)/EWG(v)/EEC-4/EEC(t) Pg-3/Pg-4 GW

ACCESSION NR: AR5005740 S/0169/64/000/012/A012/A012

Ref zh. Geofiz., Abs. 12A72

AUTHOR: Gopeyuk, S. I.

L 06354-67 EWT(1) GW

ACC NR: AR6013401 SOURCE CODE: UR/0269/65/000/011/0048/0048

AUTHOR: Gopasyuk, S. I.

30
B

TITLE: Time variations of the transverse magnetic field structure in spot groups and the optical appearances

SOURCE: Ref. zh. Astronomiya, Abs. 11.51.419

REF SOURCE: Izv. Krymsk. astrofiz. observ., v. 33, 1965, 100-110

TOPIC TAGS: sun spot, solar magnetic field, transverse magnetic field

ABSTRACT: A complicated study of the transverse magnetic field structure, photoheliograms, and Hα-movie films for two spot groups (2—8 September 1961 and 11—13 July 1962) is presented. The causes of the formation of a strongly twisted field for the lead spot of the first group and for a large unipolar spot in the second are discussed. Two possible explanations for such a field were considered earlier by the author and V. Ye. Stepanov (RZhAstr, 1963, 4.51.425): 1) twisting of the lines of force under the action of Coriolis forces for radial effluent, 2) forceless structure of the spot magnetic field. The author indicates a third which, in his opinion, is a more realtistic cause of the twisting of lines of force — rotation of the spot as a whole should, under the freezing condition, lead to twisting of the lines of force. The following properties are noted, which confirm this hypothesis:

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UDC: 523.745

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ACC NR: AR6013401

1) the magnetic field of the spot is twisted in the opposite sense with respect to the rotation of the spot; 2) the twisting occurs more rapidly, the more rapid the spot rotation; 3) the twist is greatest for the greatest angle of rotation; 4) the spiral slope increases with distance from the boundary of the nucleus, i.e., the weak fields are twisted more strongly. It is noted that the curve of the relative daily distribution of spot emission is close to the curve of the relative change of spot rotation angle. The number of emissions increases with rapid spot rotations. A possible mechanism for the occurrence of emission is considered. It is shown that as a result of spot rotation instability of the "constriction" type can form, because of which acceleration of material with density $\rho \geq 10^{-11}$ g/cm^3 to hundreds of kilometers per second is possible. Bibliography of 27 citations. V. Obridko [Translation of abstract]

SUB CODE: 03

Card 2/2 nkc

GOPASYUK, S. N. and MOISEYEV, I. G.,

"A Comparison of the Sporadic 1,5 m radioemission of the Sun with Rapidly Cha nging Processes on the Sun,"

paper submitted for the Symposium on Radio Astronomy, 30 Jul - 6 Aug 58, Paris

GOPENGAUZ, I.Ye.; TIMAN, A.F.

The modulus of continuity of periodic functions with a given modulus of smoothness. Usp.mat.nauk 12 no.3:291-294 My-Je '57. (MIRA 10:10)

(Functions, Periodic)

GOPENGAUZ, I.E.

AUTHOR: BRUDNYY,YU.A., GOPENGAUZ,I.E. PA - 2903
TITLE: On a Problem by N.N.LUZIN. (Ob odnom voprose N.N.LUZINA, Russian)
PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 1, pp 12 - 15 (U.S.S.R.)
Received: 5 / 1957 Reviewed: 6 / 1957

ABSTRACT: In his paper on "An Integral and Trigonometrical Series" (1951) N.N.LUZIN raised the following problem: f(x) denotes a continuous function; $f_n(x)$ denotes its n-th approximation. At certain points this approximation is very close and in other points it is only remote. The problem arises whether the measure of the point set of the latter type of points equals zero. Everything, of course, depends in this case on the laws of the approximation. Trigonometric or TSCHEBYSCHEFF's approximations are the most interesting.
The problem may also be put as foolows: Is there a measure of the set M_n for any function f(x) which is continuous in [a,b] , which is equal to zero in the case of all sufficiently great n? In the case of the class of functions which are continuous in a half-open interval the answer must be negative. A.F.TIMAN, in his lectures at the University of Djnepropetrowsk, supposed the answer to be negative also in the case of functions f(x) which are continuous in a closed interval. On this occasion the measure of the set M_n tends towards zero, if $n \to \infty$. The results obtained from the present paper confirm

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On a Problem by N.N.LUZIN. PA - 2903

this assumption. Further, three theorems are given and proved:

Theorem 1: There exists a function $F(x)$ continuous in $[a,b]$ and an infinite series of natural numbers n_k ($k = 0,1,\ldots$; n_0 n_1 ...) in such a way that the inequality $\mathrm{mes}M_{n_k}(F) > 0$ holds for arbitrary k. Here $f(x)$ denotes a function continuous in $[a,b]$, $P_n(f;x)$ the polynomical with an order $< n$ which deviates as little as possible from $f(x)$ in this section, $M_n(f)$ the set of such points of the given section where $E_n(f) = |f(x) - P_n(f;x)|$ applies. In addition $E_n(f) = \max_{a \le x \le b} |f(x) - P_n(f;x)|$ holds good.

Theorem 2: There exists a function $F(x)$ continuous in $[0,2\pi]$ and an infinite series of numbers n_k ($k = 0, 1, 2, \ldots$; $n_0 < n_1 < n_2 < \ldots$) in such a way that the inequality $\mathrm{mes}M_{n_k}^{(F)} > 0$ holds for arbitrary k. The quantities occurring in this theorem are defined.

Card 2/2 Finally a third theorem and three conclusions resulting therefrom are given.

ASSOCIATION: State University of Djnepropretovsk
PRESENTED BY: A.N.KOLMOGOROV, Member of the Academy
SUBMITTED: 25.5.1956
AVAILABLE: Library of Congress

GOPENGAUZ, I. Ye, Cand Phys-Math Sci -- (diss) "Concerning the Multiplicity of Points of Maximum Deviation," Dnepropetrovsk, 1960, 6 pp, 100 copies (Dnepropetrovsk State U. im 300th Anniversary of the Union of the Ukraine and Russian) (KL, 47/60, 97)

16.4100

29181
S/021/60/000/010/002/016
D251/D303

AUTHOR: GOPENGAUZ, I. YE.
Hopenhauz, I.Ye.

TITLE: On sets of maximum deviation

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 10, 1960, 1327 - 1330

TEXT: The author considers a sequence of continuous functions $\{f_n(x)\}_{n=0}^{\infty}$ which approach the function f(x) continuously in [a, b]. $M_n(f)n$ denotes a set of maximum deviation, i.e. the aggregate of $x \in [a, b]$ for which the difference $f(x) - f_n(x)$ attains the maximum of its modulus. In the case of the best uniform approximations by algebraic or trigonometric polynomials, there exists a function f(x) continuous on the segment, and such that the sets of maximum deviation have a positive Lebeg measure for any chosen n, and there exists a function f(x) with these properties which correspond to the approximation to a Fourier series by partial sums. On this basis, the author establishes the following results. Theorem 1:

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On sets of maximum deviation

There exists a function $F(x)$ infinitely differentiable on the segment $[a, b]$ which is not an algebraic polynomial, for which mes $M_{n_k}(F) > 0$ for an infinite sequence of numbers n_k in the case of the best uniform approximation in algebraic polynomials. Theorem 2: There exists a function $F(x)$ of period 2π, infinitely differentiable, and not a trigonometric polynomial, for which mes M_{n_k} [illegible] > 0 for an infinite sequence of numbers n_k in the case of the best uniform approximation in trigonometric polynomials. Theorem 3: There exists a function of period 2π which is infinitely differentiable and not a trigonometric polynomial, for which $M_{n_k}(F) > 0$ for an infinite sequence of numbers n_k in the case of the approximation to a Fourier series by means of partial sums. The case of approximations by means of interpolation polynomials with a matrix of nuclei of interpolation $t_k^{(n)}$, $0 \leqslant k \leqslant n$, $n = 0, 1, \ldots$ is then con-

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sidered. In this case not even $M_n(f)$ always tends to zero. In this case, for every function continuous on [a, b] and not an algebraic polynomial to be such that mes $M_n(f) \to 0$ as $n \to \infty$, it is necessary and sufficient that the aggregate of numbers $t_k^{(n_i)}$ is everywhere compact for an arbitrary infinite sequence $\{n_i\}$. Theorem 4: For an arbitrary triangular matrix $t_k^{(n)}$ there exists a function $F(x)$, continuous on [a, b] and not an algebraic polynomial for which mes $M_n(F) > 0$ for all n in the case of approximation by Lagrange polynomials $P_n(x)$ which interpolate functions in nucleus $t_n^{(k)}$. Theorem 5: For an arbitrary triangular matrix $t_k^{(n)}$ such that $a = t_0^{(n)} < t_n^{(k)} < t_n^{(n)} = b$, $0 < k < n$, $n \geqslant 1$, there exists a function $F(x)$ continuously differentiable on [a, b] and not an algebraic polynomial, for which mes $M_n(F) > 0$ for all n in the case of approximation by the interpolation of Hermite polynomials with nu-

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On sets of maximum deviation ...

cleus $t_k^{(n)}$. If A is the triangular matrix $t_k^{(n)}$ a$_k^{(n)} \leqslant b$, $0 \leqslant k \leqslant n$ $n = 0, 1, 2, \ldots$, and $Q_n(f; x)$ is an algebraic polynomial of degree not greater than $(n+1)(\mu+1) - 1$, which interpolates $f(x)$, $f'(x) \ldots f^{(\mu)}(x)$ in the [redacted] $t_k^{(n)}$ and $M_n(f)$ is the corresponding set of maximum deviation, then Theorem 6: If A [redacted] such that for every function $f(x)$ which is infinitely differentialbe on $[a, b]$ and for every p the inequality

$$\max_{a \leqslant x \leqslant b} |f(x) - Q_n(f; x)| \leqslant \frac{C_p(f)}{n^p}, \quad n = 1, 2, \ldots,$$

holds, where $C_p(f)$ is a constant depending only on p and f, then there exists a function $F(x)$ infinitely differentiable on (a, b) which is not an algebraic polynomial, for which mes $M_{nk}(F) > 0$ for an infinite sequence n_k. If $\mu = 1$, it is sufficient to demand that

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On sets of maximum deviation

$$\sum_{i=0}^{n} \left| \frac{l_n(x)}{(x - t_i^{(n)}) l_n'(t^{(n)})} \right| = O(n^{\alpha}), \text{ where } l_n(x) = (x - t_0^{(n)}) \ldots (x - t_n^{(n)}).$$

If $\mu = 2$ it is sufficient to demand that

$$\sum_{i=0}^{n} \frac{l_n^2(x)}{(x - t_i^{(n)})^2 l_n'^2(t_i^{(n)})} \left| 1 + \frac{l_n''(t_i^{(n)})}{l_n'(t_i^{(n)})} (x - t_i^{(n)}) \right| + |x - t_i^{(n)}| = O(n^{\alpha})$$

Both these conditions are satisfied by, e.g. Chebishev's matrix of nuclei

$$t_k^{(n)} = \cos \frac{2k + 1}{2(n + 1)} \pi, \quad k = 0, 1, \ldots, n.$$

In conclusion the author thanks O.F. Timan for his help and guidance. There are 2 Soviet-bloc references.

Card 5/6

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D251/D303

On sets of maximum deviation

ASSOCIATION: Dnipropetrovs'kyy derzhavnyy universytet (State University of Dnipropetrovs'k)

PRESENTED: by B.V. Hnyedenko, Academician AS UkrSSR

SUBMITTED: November 5, 1959

Card 6/6

GOPENGAUZ, I.Ye.; RABINOVICH, A.L.

One relation in the theory of uniform and integral approximations.
Ukr. mat. zhur. 12 no.3:339-341 '60. (MIRA 13:11)
(Approximate computation)

68128

~~16(1)~~ 16,4100 S/038/60/024/01/006/006

AUTHORS: Brudnyy, Yu.A., and Gopengauz, I.Ye.

TITLE: On the Measure of the Set of Points of the Maximal Deviation

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya matematicheskaya, 1960, Vol 24, Nr 1, pp 129-144 (USSR)

ABSTRACT: Let Q be a set of finite measure and let $\{f_k(x)\}_0^\infty$ be a sequence of bounded functions measurable on Q, where the difference $f_k(x)-f_n(x)$, $n \neq k$, may assume every value only on a set of the measure zero.

Theorem 1: If $M_n = E_{x \in Q} \{|f_n(x)| = R_n\}$, i.e. if M_n is the set of points $x \in Q$ for which $|f_n(x)| = R_n$ $(R_n \geq 0)$, then

$\lim_{n \to \infty}$ mes $M_n = 0$.

From the theorem there result some conclusions for approximations by functions on the whole real axis, by rational fractions, by Fourier partial sums, and by polynomials with respect to Markov's systems of functions.

Card 1/3

68128

On the Measure of the Set of Points of the Maximal Deviation

S/038/60/024/01/006/006

Let $f(x)$ be continuous on $[a,b]$; let $P_n(f;x)$ be an algebraic polynomial of degree $\leq n$ deviating least from $f(x)$ on $[a,b]$, $E_n(f) = \max_{a \leq x \leq b} |f(x)-P_n(f,x)|$; let $M_n(f)$ be the set of points $x \in [a,b]$ for which $E_n(f) = |f(x)-P_n(f;x)|$.

Theorem 2: There exists a function $F(x)$ continuous on $[a,b]$ and an infinite sequence of natural numbers n_k $(k=0,1,\ldots;$ $n_0 < n_1 < \ldots)$ so that for every k it holds mes $M_{n_k}(F) > 0$.

The problem Nr 28 of Luzin [Ref 1] is answered negatively in

Theorem 3: In the case of uniform best approximations by algebraic (trigonometric) polynomials there exists a function $F(x)$ infinitely often differentiable on $[a,b]$ with the property that mes $M_n(F) > 0$ holds for infinitely many numbers n.

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68128

On the Measure of the Set of Points of the Maximal Deviation

S/038/60/024/01/006/006

Let $f(x)$ be continuous, $f(x+2\pi) = f(x)$; let $S_n(f;x)$ be the partial sum of the Fouries series of $f(x)$; let $M_n(f)$ be the set of those points $x \in [0,2\pi]$ for which $|f(x)-S_n(f;x)| = \max_t |f(t)-S_n(f;t)|$.

Theorem 4: There exists a function $F(x)$ continuous on $[0,2\pi]$ and an infinite sequence of numbers n_k $(k=0,1,2,\ldots, n_0 < n_1 < n_2 < \ldots)$ so that mes $M_{n_k}(F) > 0$ for all k.

The authors mention N.N.Lusin, N.K.Bari, D.Ye.Men'shov, V.Ya. Pan, S.N.Bernshteyn, and A.A.Markov. They thank A.F.Timan for the theme and advices.

PRESENTED: by S.L.Sobolev, Academician
SUBMITTED: May 9, 1958

Card 3/3

80209

S/038/60/024/02/07/007

16.6500

AUTHOR: Gopenganz, I. Ye.

TITLE: On the Deviation of the Functions From the Lagrange and Hermitean Interpolation Polynomials 16

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya matematicheskaya, 1960, Vol. 24, No. 2, pp. 297-308

TEXT: Let A be an arbitrary triangular matrix of numbers $t_k^{(n)} \in [a,b]$; $Q_n(f, A; x)$ the algebraic polynomial with degree $\leq n$ which interpolates the function $f(x)$ in the nodes $t_k^{(n)}$ which are formed by the n-th line of the matrix A. Let $G_n(f, A) = \max_{a \leq x \leq b} |Q_n(f; A; x) - f(x)|$ and $M_n(f, A)$ be the set of the points $x \in [a,b]$ in which it is

$$|Q_n(f, A; x) - f(x)| = G_n(f, A) .$$

Theorem 1 : For an arbitrary triangular matrix A of numbers $t_k^{(n)} \in [a,b]$ there exists a function $F(x)$ continuous on $[a,b]$ which is no algebraic polynomial and for which it is mes $M_n(F; A) > 0$ for all n .

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On the Deviation of the Functions From the Lagrange and Hermitean Interpolation Polynomials

Theorem 2 : An analogous statement in the case $t_0^{(n)} = a$, $t_n^{(n)} = b$ for all $n \geq 1$.
Let A be as in theorem 1. Let $Q_n(f,x)$ be the ordinary polynomial whose degree is $\leq (n+1)(\mu+1) - 1$ and which interpolates the functions $f(x), f'(x), \ldots$ $f^{(\mu)}(x)$ in the nodes which are given by the n-th line of A; let $M_n(f)$ be the corresponding set of points of maximum deviation.
Theorem 3 : If A is so that for every p and every function f(x) infinitely often differentiable on [a,b] it holds

$$(11) \qquad \max_{a \leq x \leq b} |f(x) - Q_n(f; x)| \leq \frac{c_p(f)}{n^p} \quad , \quad n = 1,2,\ldots,$$

where $c_p(f)$ is a constant only depending on f and p, then there exists a function F(x) infinitely often differentiable on [a,b] which is no algebraic polynomial, and for which it is mes $M_n(F) > 0$ for infinitely many n .

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On the Deviation of the Functions From the Lagrange and Hermitean Interpolation Polynomials

S/038/60/024/02/07/007

The author mentions N.N. Luzin, N.K. Bari and D.Ye. Men'shov. He thanks A.F. Timan for the subject.
There are 2 Soviet references.

PRESENTED: by S.L. Sobolev, Academician

SUBMITTED: February 12, 1959

Card 3/3

85230

S/039/60/052/003/007/007
C 111/ C 333

16.3000

AUTHORS: Brudnyy, Yu. A., Gopengauz, I. Ye. (Dnepropetrovsk)

TITLE: Generalization of a Theorem of Hardy and Littlewood

PERIODICAL: Matematicheskiy sbornik, 1960, Vol.52, No.3, pp.891-894

TEXT: The authors consider functions analytic in $|z|<1$ and continuous in $|z| \leq 1$. The modulus of continuity on the boundary is defined by

$$\omega(\delta;f) = \text{l.u.b.}_{|\theta_1-\theta_2|\leq\delta} |f(e^{i\theta_1}) - f(e^{i\theta_2})|.$$

Generalizing a theorem of Hardy-Littlewood (Ref.1) and sharpening a result of Ya. L. Geronimus (Ref.2) the authors prove

Theorem 4: In order that the function $f(z)$ on the unit circle has the modulus of continuity $\omega(\delta;f) = O(\omega(\delta))$, it is necessary and if

$$(1) \qquad \int_x^1 \frac{\omega(t)}{t}\,dt = O(\omega(x))$$

is satisfied, also sufficient that in $|z|<1$ it holds

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C 111/ C 333

Generalization of a Theorem of Hardy and Littlewood

(2) $|f'(z)| \leq C \frac{\omega(1-|z|)}{1-|z|}$.

Theorem 5: If $f(z)$ possesses on the unit circle the modulus of continuity $\omega(\delta)$ which satisfies (1), then in $|z| \leq 1$ it holds the inequality

$$|f(z_1) - f(z_2)| \leq C\,\omega(|z_1|-|z_2|).$$

The authors thank A. F. Timan for the subject.

There are 2 references: 1 Soviet and 1 German.

[Abstracter's note: (Ref.2) is a paper of Ya. L. Geronimus in Matematicheskiy sbornik, 1956, Vol. 38, pp. 320-330].

SUBMITTED: April 19, 1959

Card 2/2

87143

S/041/60/012/003/007/011
C111/C222

16.4100 16.4200

AUTHORS: Gopenganz, I.Ye., and Rabinovich, A.L.

TITLE: On a Relation in the Theory of Uniform and Integral Approximations

PERIODICAL: Ukrainskiy matematicheskiy zhurnal, 1960, Vol. 12, No. 3, pp. 339 - 341

TEXT: Let $W^{(r)}_{LK}$ be the class of those $f(x)$, $f(x + 2\pi) = f(x)$, having an absolutely continuous $f^{(r-1)}(x)$ and for which it holds $\|f^{(r)}\|_L = \int_0^{2\pi} |f^{(r)}(x)|\,dx \leq K$, $r = 1,2,\ldots$. Let $W^{(r)}_{MK}$ be the class of those $f(x)$, $f(x + 2\pi) = f(x)$, having an absolutely continuous $f^{(r-1)}(x)$ and a bounded $f^{(r)}(x)$, where $\|f^{(r)}\|_M = \text{vrai sup}_{0 \leq t \leq 2\pi} |f^{(r)}(t)| \leq K$. Let

$$U_n(f;\lambda) = U_n(f, x;\lambda) = \frac{a_0}{2} + \sum_{k=1}^{n} \lambda_k^{(n)} (a_k \cos kx + b_k \sin kx) ,$$

where $\lambda_k^{(n)}$ $(k = 0,1,2,\ldots, n+1 ; \lambda_0^{(n)} = 1 , \lambda_{n+1}^{(n)} = 0)$ is a triangular

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On a Relation in the Theory of Uniform and Integral Approximations

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matrix ; a_k , b_k are Fourier coefficients of f(x). Let

$$E_n\left(W^{(r)}{}_{LK} ; \lambda\right)_L = \sup_{f \in W^{(r)}_{LK}} \| f - U_n(f ; \lambda) \|_L$$

$$E_n\left(W^{(r)}{}_{MK} ; \lambda\right)_M = \sup_{f \in W^{(r)}_{MK}} \| f - U_n(f ; \lambda) \|_M$$

Let (2) $\mu_k^{(n)} \leq \mu_{k+1}^{(n)}$, $\mu_k^{(n)} - 2\mu_{k+1}^{(n)} + \mu_{k+2}^{(n)} \geq 0$

where $\mu_k^{(n)} = \dfrac{1-\lambda_k^{(n)}}{k^r}$.

Theorem : If the matrix of the $\lambda_k^{(n)}$ satisfies the condition (2) then for all $r > 0$ and $n \to \infty$ there holds the following asymptotic relation uniformly with respect to the considered matrices :

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On a Relation in the Theory of Uniform and Integral Approximations

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$$\left.\begin{matrix} E_n\left(W^{(r)}_{LK};\lambda\right)_L \\ E_n\left(W^{(r)}_{MK};\lambda\right)_M \end{matrix}\right\} = \frac{4K}{\pi^2}\left|\sum_{k=1}^{n}\frac{1-\lambda_k^{(n)}}{k^r(n-k+1)} - \frac{\ln n}{n^r}\right| + O\left(\frac{1}{n^r}\right)$$

The authors thank Professor A.F. Timan for the theme.
There are 3 Soviet references.

SUBMITTED: May 26, 1958

Card 3/3

BRUDNYY, Yu.A.; GOPENGAUZ, I.Ye.

Approximation by piecewise polynomial functions. Dokl. AN SSSR 141 no.6:1283-1286 D '61. (MIRA 14:12)

1. Konotopskiy obshchetekhnicheskiy fakul'tet Khar'kovskogo gosudarstvennogo universiteta i Dnepropetrovskiy sel'skokhozyaystvennyy institut. Predstavleno akademikom A.N.Kolmogorovym.
(Polynomials) (Approximate computation)

BRUDNYY, Yu.A.; GOPENGAUZ, I.Ye.

Approximation by piecewise-polynomial functions. Izv. AN SSSR. Ser. mat. 27 no.4:723-746 Jl-Ag '63. (MIRA 16:8)

(Functions, Continuous)

SLOBODYAN, V.I., insh.; GOPENKO, S.V., insh.

Standard fittings for industry and shipbuilding. Mech.transp. 18 no.11:39-40 N '59. (MIRA 13:4)
(Pipe fittings)

SLOBODYAN, V.I., insh.; GOPENKO, S.V., insh.

Standard pipeline fittings for industry and shipbuilding.
Sudostroenie 25 no.10:51-53 O '59. (MIRA 13:2)
(Marine engineering) (Pipe fitting)

MARKHEL', Pavel Sil'vestrovich, kand. tekhn. nauk; SMELOV, Sergey Vasil'yevich, master-konditer; MASLOV, Ivan Nikolayevich, kand. tekhn. nauk; DANILEVSKAYA, Valentina Vladimirovna, kand. tekhn. nauk; GOPENSHTEYN, Yuriy Lazarevich, inzh.; VIDANOV, Konstantin Kharitonovich, inzh.; ZAPENINA, Nina Vasil'yevna, kand. tekhn. nauk; SOKOLOVA, Nina Ivanovna, tekhnolog; PRITYKINA, L.A., red.; KISINA, Ye.I., tekhn.red.

[Confectionery products made with flour] Muchnye konditerskie izdeliia. [By] P.S.Markhel i dr. Moskva, Pishchepromizdat. Pt.1.[Making of pastries, torten, cakes, oriental and dietetic products] Proizvodstvo pirozhnykh, tortov, keksov, vostochnykh i dieticheskikh izdelii. 1962. 679 p. (MIRA 16:7)

(Baked products)

SCHWARTZE, P.; GÖPFERT, E.

Urethane induced changes of the electrical activity of rabbit brain in postnatal development. Activ. nerv. sup. (Praha) 7 no.1:37-40 '65.

1. Physiologisches Institut der Karl-Marx-Universitat, Leipzig.

TOKAREVICH, K.N.; GOPINA, A.I.; POPOVA, Ye. M.; SILINA, N.I.

Outbreak of swamp fever of the Pomona type as a result of bathing. Trudy Len. inst. epid. i mikrobiol. 25:286-292 '63. (MIRA 17:1)

1. Iz otdela osobo opasnykh infektsiy Leningradskogo instituta epidemiologii i mikrobiologii imeni Pastera, Doroshnoy sanitarno-epidemiologicheskoy stantsii Oktyabr'skoy zheleznoy dorogi i Doroshnoy polikliniki g. Petrozavodska.

GOPIRIDZE, A. ZH

22745 Gopiridze, A. Zh. O Nevroticheskikh I Psikhonevroticheskikh Reaktsiyakh Vogennogo I Poslevoye Nnogo Vremeni Trudy (Toilis. Gos. Med. In-T), T. V, 1948, P. 270-78-Na Gruz. Yaz-Rezyume Na Rus. Yaz

SO: Letopis', No. 30, 1949

GOPITKEVICH, M. P., SOBCHUK, B. A., IMENICH, M. I. (USSR)

"The Influence of ATP and Insuline on the Carbohydrate Metabolism of Ehrlich ascite Cells and Nucleated Erythrocytes (read by title)."

Report presented at the 5th International Biochemistry Congress, Moscow, 10-16 August 1961

VASIL'YEV, I.V., inzh.; GOPIUS, A.D., tekhnik

Investigating antifriction properties of materials for sliding bearings operating in an alkaline medium. Trudy NIIKHIMMASH no.27:120-126 '59. (MIRA 14:8)
(Bearings (Machinery))

VASIL'YEV, I.V., inzh.; GOPIUS, A.D., tekhnik

Investigating antifriction properties of materials for sliding bearings operating in chloride solutions. Trudy NIIKHIMMASH no.27:137-141 '59. (MIRA 14:8)
(Bearings (Machinery))

L 24863-66 EWP(e)/EWT(m)/EWP(j)/T/ETC(m)-6 IJP(c) WW/DJ/GS/RM/WH

ACC NR: AT6008950 (A) SOURCE CODE: UR/0000/65/000/000/0107/0112

AUTHORS: Vinogradov, Yu. M.; Vasil'yev, I. V.; Gopius, A. D.; Brusnichkin, N. S. 64 62 13+1

ORG: none

TITLE: The use of antifriction plastics for slip bearings in chemical machine building

SOURCE: Moscow. Institut mashinovedeniya. Plastmassy v podshipnikakh skol'zheniya; issledovaniya, opyt primeneniya (Plastics in friction bearings; research and experiment in application). Moscow, Izd-vo Nauka, 1965, 107-112

TOPIC TAGS: friction coefficient, wear resistance, antifriction material, antifriction bearing, steel, teflon, polyamide / Kh23N27M2T steel

ABSTRACT: Teflon-4 and teflon-40 (with and without fillers), pyroceramic plastics, polyamides, textolites, fiber plastics, and graphite plastics are examined as the currently most promising antifriction materials for chemical machine building. The use of the Kh2M, MT-2, MT2M, and MT-8M friction machines is discussed. The Kh2M is very convenient for laboratory research in aqueous solutions of bases, acids, and salts. The other machines permit the determination of the

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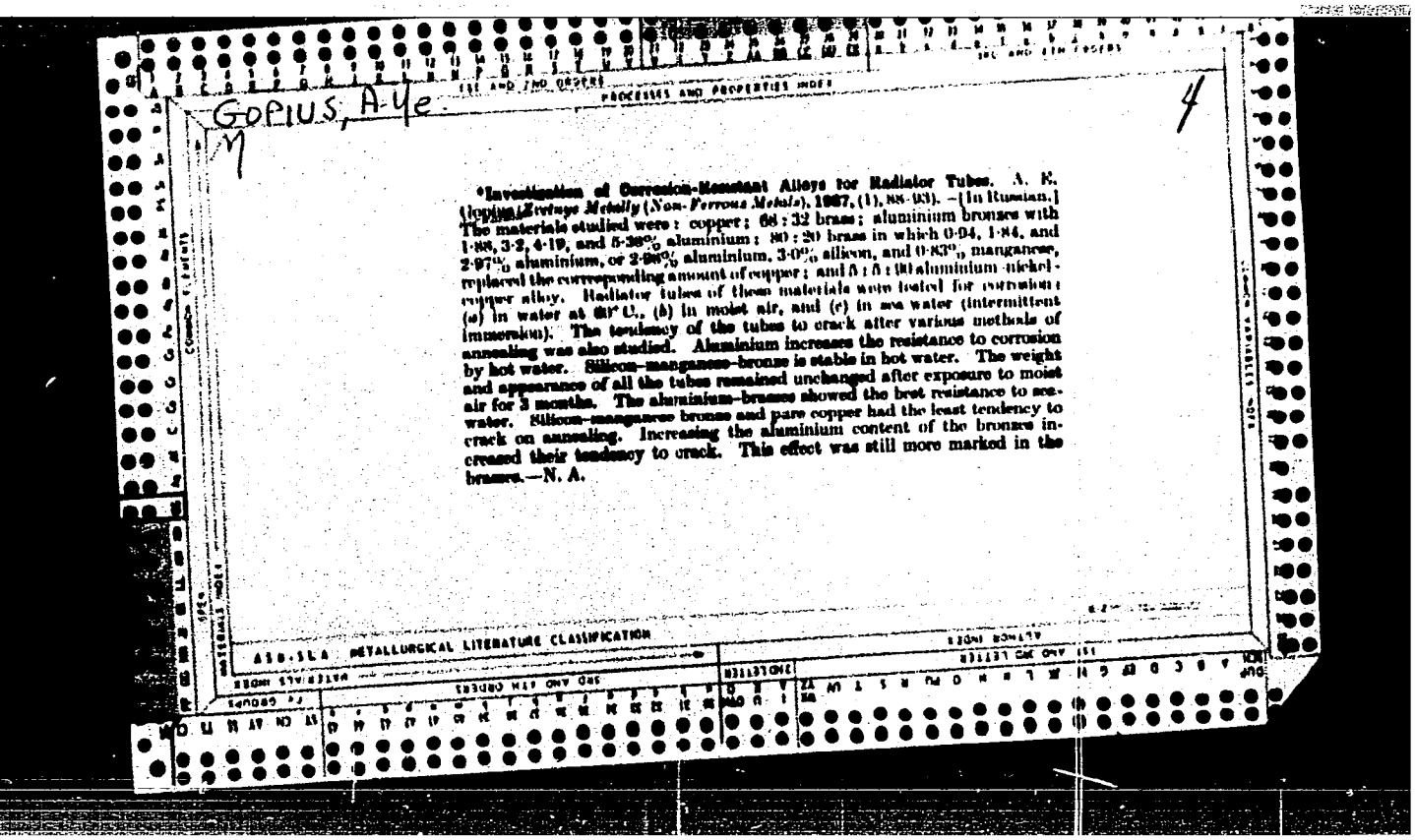
L 24863-66

ACC NR: AT6008950 2

dependence of wear resistance and the friction coefficient upon various factors studied. The life of a bearing assembly was increased to 8000—10 000 hrs by the use of teflon-40. Teflon-4 is found to be unsuitable for use in certain media. In view of the higher chemical stability of teflon-4 and of its good antifriction qualities, work should be continued in creating its compositions with other materials. Orig. art. has: 1 table and 1 diagram.

SUB CODE: 11/ SUBM DATE: 31Jul65

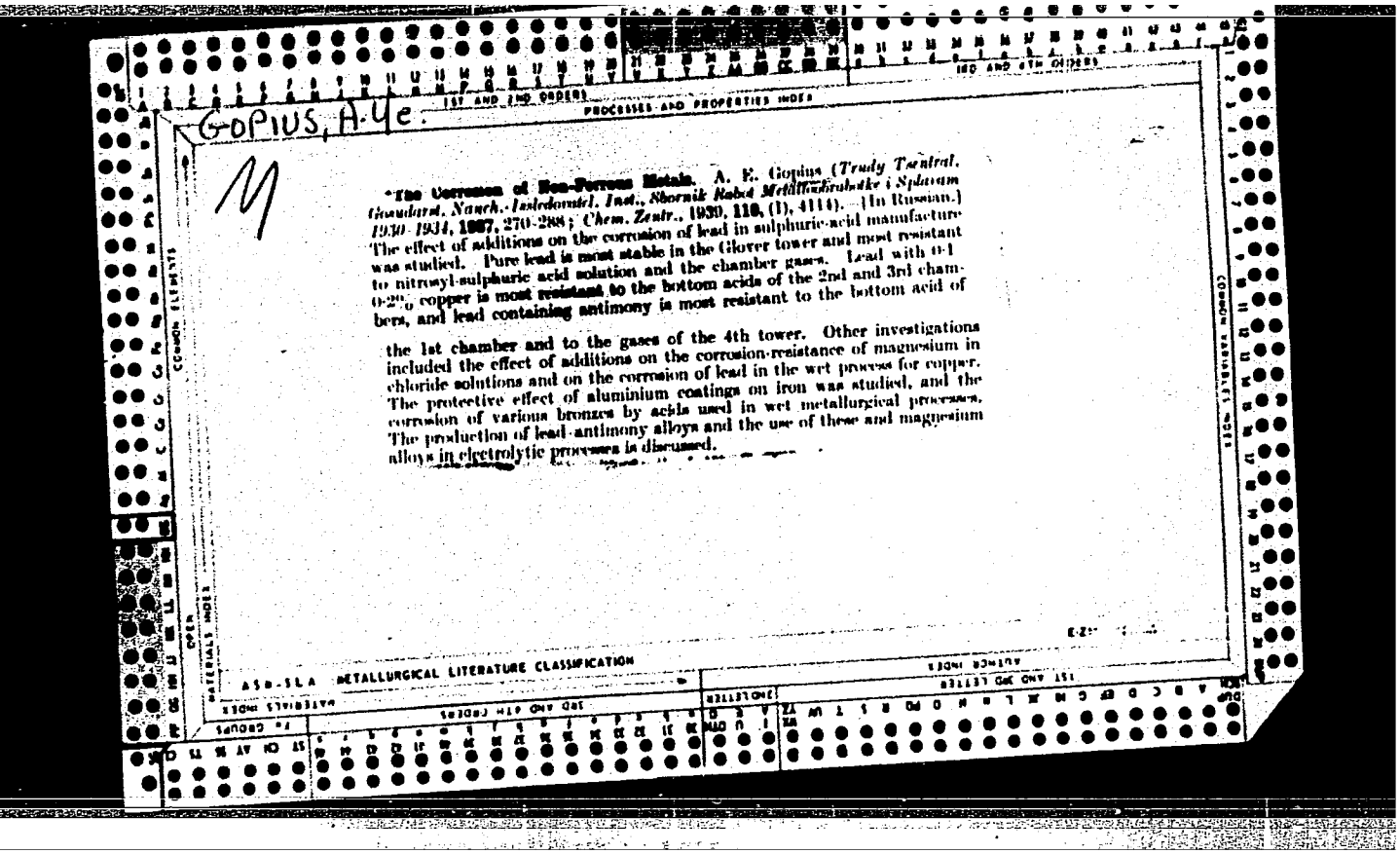
Card 2/2 dda



GOPIUS, A-4e

4

*Investigation of Corrosion-Resistant Alloys for Radiator Tubes. A. K. Gopius. *Tsvetnye Metally* (*Non-Ferrous Metals*), 1937, (1), 88-93). —[In Russian.] The materials studied were: copper; 68:32 brass; aluminium bronzes with 1·88, 3·2, 4·19, and 5·38% aluminium; 80:20 brass in which 0·94, 1·86, and 2·97% aluminium, or 2·98% aluminium, 3·0% silicon, and 0·83% manganese, replaced the corresponding amount of copper; and 5:5:1 aluminium-nickel-copper alloy. Radiator tubes of these materials were tested for corrosion: (a) in water at 80° C., (b) in moist air, and (c) in sea water (intermittent immersion). The tendency of the tubes to crack after various methods of annealing was also studied. Aluminium increases the resistance to corrosion by hot water. Silicon-manganese-bronze is stable in hot water. The weight and appearance of all the tubes remained unchanged after exposure to moist air for 3 months. The aluminium-bronzes showed the best resistance to sea-water. Silicon-manganese bronze and pure copper had the least tendency to crack on annealing. Increasing the aluminium content of the bronzes increased their tendency to crack. This effect was still more marked in the brasses.—N. A.



GOPIUS, A.Ye.

M

The Corrosion of Non-Ferrous Metals. A. E. Gopius (*Trudy Tsentral. Gosudarst. Nauch.-Issledovatel. Inst., Sbornik Rabot Metallicheskoi Sektsii, 1930–1934*, **1937**, 270–288; *Chem. Zentr.*, 1939, **110**, (I), 4114). [In Russian.] The effect of additions on the corrosion of lead in sulphuric-acid manufacture was studied. Pure lead is most stable in the Glover tower and most resistant to nitrosyl-sulphuric acid solution and the chamber gases. Lead with 0·1–0·2% copper is most resistant to the bottom acids of the 2nd and 3rd chambers, and lead containing antimony is most resistant to the bottom acid of the 1st chamber and to the gases of the 4th tower. Other investigations included the effect of additions on the corrosion-resistance of magnesium in chloride solutions and on the corrosion of lead in the wet process for copper. The protective effect of aluminium coatings on iron was studied, and the corrosion of various bronzes by acids used in wet metallurgical processes. The production of lead–antimony alloys and the use of these and magnesium alloys in electrolytic processes is discussed.

GOPIUS, A. Ye., Eng. Cand. Tech. Sci.

Dissertation: "Investigation of the Processes of Electrolytic Deposition of Copper and the Technology of Calvanoplastic Fabrication of Thin-Walled Pipes." Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin, 3 Feb 47.

SO: Vechernyaya Moskva, Feb, 1947 (Project #17836)

Gopius, A. Ye.

PHASE I BOOK EXPLOITATION SOV/4535

Vsesoyuznyy sovet nauchno-tekhnicheskikh obshchestv

Mezhkristallitnaya korroziya i korroziya metallov v napryazhennom sostoyanii (Intercrystalline and Stress Corrosion of Metals) Moscow, Mashgiz, 1960. 358 p. 3,000 copies printed.

Ed.: I.A. Levin, Candidate of Technical Sciences; Ed. of Publishing House: I.I. Lesnichenko, Engineer; Tech. Ed.: V.D. El'kind; Managing Ed. for Literature on Metalworking and Instrument Making (Mashgiz): V.V. Rzhavinskiy, Engineer; Editorial Board: I.A. Levin, Candidate of Technical Sciences (Chairman), V.P. Batrakov, Candidate of Technical Sciences, V.M. Nikiforova, Candidate of Technical Sciences, and A.V. Turkovskaya, Candidate of Technical Sciences.

PURPOSE: This collection of articles is intended for technical personnel concerned with problems of corrosion of metals.

COVERAGE: The collection contains discussions of intercrystalline corrosion of stainless steels and stress corrosion of carbon steels, low-alloy and stainless steels, and light-weight and nonferrous alloys. The tendency of steels of various composition and system to corrode under certain conditions is discussed and the nature of corrosion and corrosion cracking is analysed. No personalities are mentioned. Most of the articles are accompained by bibliographic references, the majority of which are Soviet.

V. STRESS CORROSION OF LIGHTWEIGHT AND NONFERROUS ALLOYS

Card 4/9

KLARK, G.B.; GOPIUS, A.Ye.; SMIRNOVA, Yu.A.

Effect of climatic conditions on the corrosion cracking of brass.
Trudy Inst.fiz.khim. 8:110-129 '60. (MIRA 14:4)

(Brass--Corrosion) (Corrosion and anticorrosives--Climatic factors)

S/123/61/000/018/003/015
A004/A101

AUTHORS: Gopius, A.Ye., Molchanova, V.P.

TITLE: Investigating the impact corrosion of German silver condenser tubes and developing a more durable alloy

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 18, 1961, 16, abstract 18A121 ("Tr. Gos. n.-i. i proyektn. in-ta po obrabotke tsvetn. met.", 1960, no. 18, 127 - 162)

TEXT: It was found that the addition of 0.5% Fe to grade 70/30 German silver considerably increases its corrosion resistance. A further increase in the Fe-content is less effective. If the alloy contains Mn along with Fe its corrosion resistance improves somewhat, but the presence of Mn alone is not sufficient. The optimum German silver composition is the following (in %): Ni + Co 29 - 33; Fe 1.0 - 1.5;, Mn 0.5 - 1.0, the rest being Cu. The corrosion of German silver tubes in running sea water is of an electrochemical nature. The possibility was confirmed of producing condenser tubes from these alloys by the ordinary technology used for German silver tubes. There are 10 references.

[Abstracter's note: Complete translation]

Card 1/1

N. Sazonova

S/137/61/000/010/048/056
A006/A101

AUTHOR: Gopius, A.Ye.

TITLE: Alloys for sea-water pipelines

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 10, 1961, 50, abstract 101352 ("Tr. Gos. n.-i. i proyektn. in-ta po obrabotke tsvetn. met", 1960, no. 18, 163 - 175)

TEXT: Tests in sea water were made with pipes manufactured from different alloys, such as Cu-Ni alloys, Al bronze, Al bronze with Fe admixture, Al-brass, stannous brass, manganous bronze, silico-manganous bronze, Ni brass, tombac, Cu (for comparison). Cu-Ni alloy pipes with 5% Ni, 1.0 - 1.4% Fe, and 0.3 - 0.8% Mn are recommended for the use in pipelines of outboard sea water. There are 5 references.

Ye. Layner

[Abstracter's note: Complete translation]

Card 1/1

GOPIUS, A.Ye.

Alloys for sea water pipelines. Trudy Giprotsvetmetobrabotka no.18: 163-175 '60. (MIRA 13:10)
(Marine pipe fitting) (Alloys--Corrosion)

GOPIUS, A.Ye.; NAUMOVA, M.M.

Developing measures to increase dezincification resistance of brass strips for automobile radiator tubes. Trudy Giprotsvetmetobrabotka no.18:176-196 '60. (MIRA 13:10)
(Brass--Metallography) (Corrosion and anticorrosives)

S/680/61/000/020/013/013
D205/D302

AUTHORS: Gopius, A. Ye. and Vinogradova, N. B.

TITLE: Copper alloys, not containing nickel, for sea-water pipelines

SOURCE: Moscow. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut obrabotki tsvetnykh metallov. Sbornik nauchnykh trudov. no. 20, 1961. Metallovedeniye i obrabotka tsvetnykh metallov i splavov, 244-264

TEXT: The copper-nickel alloy МНЖ 5-1 (MNZh 5-1) has a high corrosion resistance in sea-water, but production of pipes from this alloy is connected with great technological difficulties. It was found out earlier that copper-aluminum alloys with low Al and Fe contents have good corrosion-resistance properties. The aim of this work was to explore the possibility of producing a new Cu-Al alloy for sea-water pipelines, resistant to flow-corrosion and having better technological characteristics than MNZh 5-1 and therefore able to replace it. The specifications of the pipes and

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Copper alloys, not containing ...

sheets made of the new alloy are to be complete workability by all methods in hot and cold states, without embrittlement and degradation of the mechanical properties, tensile strength ≮25 kg/mm^2, elongation ≮20%, and corrosion resistance to all kinds of corrosion in sea-water, not allowing the corrosion penetration to more than 0.15 mm/year. 15 alloys were prepared and rolled to 1 mm thickness, from which 25 x 70 mm specimens were cut out. The corrosive action of the sea-water was tested at 30 - 35°C in a stirred vessel with the peripheral velocity of the stirrer of 11 m/sec. Weighing of the specimens after time intervals allowed calculation of the weight loss (g/m^2/hr) and from it, of the penetration (mm/year). Intercrystalline corrosion was studied microscopically. Mechanical properties at high temperatures and their changes depending on the degree of deformation and annealing temperature were investigated and the welding properties of the alloys were tested. It was found that, on the whole, the corrosion resistance of the alloys was high (not less than the corrosion resistance of the alloy MNZhMts 5-1, 2-0, 5). The welding and soldering of the

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alloys is possible, the joint having the same resistance as the alloys. The mechanical tests have shown that the alloys are very plastic and do not differ much from copper, the elongation in the zone of maximum brittleness at 600°C being 13 - 27%. The best results were obtained at a maximum Fe content - 0.5% with a maximum Al content of 0.6%. In such alloys the elongation will not decrease below 20%. The optimum composition is 0.2 - 0.5% Fe, 0.4 - 0.6% Al, the rest Cu. An industrial, experimental batch of tubes was prepared from the alloys. When producing the batch it was established that the tubes had pressing and drawing characteristics close to that of copper tubes. The stresses applied were somewhat higher and increased with increasing Fe and Al contents. Technological tests of flattening, bending etc. performed according to GOST specifications were successful. There are 23 figures, 9 tables and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: Metal Industry Handbook, p. 113-114, 1955.

Card 3/3

GOPIUS, A.Ye.; KATS, Yu.A.

Corrosion resistance of brass tubes in the sugar industry.
Trudy Giprotsvetmetobrabotka no.20:265-279 '61. (MIRA 15:2)
(Tubes—Corrosion) (Sugar manufacture—Equipment and supplies)

GOPIUS, A.Ye.; KATS, Yu.A.; KHOKHRYAKOV, A.N.; KOSYAKOVA, V.I.

Testing automobile radiators made of arsenic brass. Trudy Giprotsvetmetobrabotka no.20:280-286 '61. (MIRA 15:2)
(Automobile—Radiators) (Brass—Testing)

GOPIUS, A.Ye., kand.tekhn.nauk; MINKIN, M.L., kand.tekhn.nauk; NAUMOVA, M.M.; KATS, Yu.A.; KHOKHRYAKOV, A.N.; KOSYAKOVA, V.I.

Investigating materials for radiator pipes of automobile engines. Avt.prom. 28 no.5:15-17 My '62. (MIRA 15:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut obrabotki tsvetnykh metallov, Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut i Gor'kovskiy avtozavod.
(Automobiles--Radiators) (Brass--Testing)

GOPIUS, A.Ye. [deceased]; RODIONOVA, L.L.; ZUYEV, S.S.

Investigating the corrosion resistance of welded brass pipe.
Trudy Giprotsvetmetobrabotka no.24:258-263 '65.
(MIRA 18:11)

L 38910-66 EWT(m)/EWP(t)/ETI IJP(c) JD/WB

ACC NR: AP6019563 SOURCE CODE: UR/0080/66/039/006/1249/1256

AUTHOR: Gopiyenko, V. G.; Gopiyenko, G. N.; Timofeyev, V. V.; Podushkin, D. I.

ORG: none

TITLE: Behavior of steels in melts containing titanium chlorides

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 6, 1966, 1249-1256

TOPIC TAGS: titanium, chloride manganese, chromium, vanadium, molybdenum, nickel, corrosion, steel / steel-3, 1Kh18N9T steel, 2Kh13 steel

ABSTRACT: The article reports on a study of the behavior of certain steels (steel-3, 1Kh18N9T, 2Kh13) and metals (Mn, Cr, V, Mo, Ni) in melts containing $TiCl_2$, $TiCl_3$, and $TiCl_4$ in various proportions, carried out mainly for the purpose of obtaining melts with lower titanium chlorides, and also to determine the conditions of electrowinning and refining of titanium in melts. In melts containing metallic Ti and $TiCl_2$, virtually no corrosion of steel-3 is observed; on the contrary, the formation of titanium coatings on the steel takes place. Alloy steels (1Kh18N9T and 2Kh13) display a greater corrosion than does steel-3, owing to a selective dissolution of chromium out of the steel. In melts containing $TiCl_3$, all the steels corrode and contaminate the melt with iron chlorides; a lesser corrosion is exhibited by steel-3 in this case as well. The most pronounced corrosion occurs on all the steels under

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ACC NR: AP6019563

the influence of $TiCl_4$ vapor. The corrosion resistance of the metals in all the investigated media decreases in the series Mo, Ni, Cr, V, Mn. It is shown that the interaction of the steels with titanium chlorides in the melt is associated with a simultaneous coarsening of the structure of the steels, which causes a decrease of their mechanical strength. From this point of view, steel-3 has the lowest strength, and it should therefore be used in the manufacture of stationary parts subjected to small loads. The behavior of steel-3 under an anodic potential was shown to depend strongly on the conditions of its contact with the more electronegative titanium metal. Orig. art. has: 6 figures and 3 tables.

SUB CODE: 07,11/ SUBM DATE: 18Nov64/ ORIG REF: 003/ OTH REF: 004

L 38910-66 EWT(m)/EWP(t)/ETI IJP(c) JD/WB

ACC NR: AP6019563 SOURCE CODE: UR/0080/66/039/006/1249/1256

AUTHOR: Gopiyenko, V. G.; Gopiyenko, G. N.; Timofeyev, V. V.; Podushkin, D. I.

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Card 1/2 UDC: 546.82'131-143